

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

BMPE

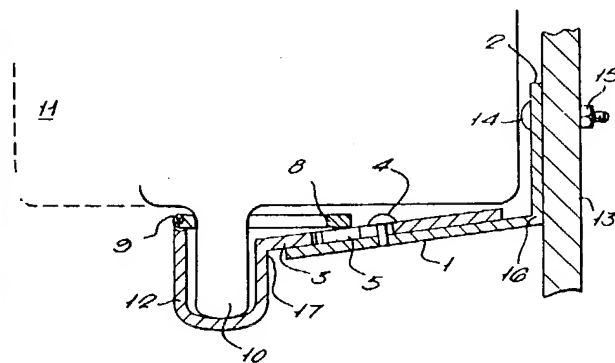
M5596W/47 ★GB 1414-403

Support for chemical container - has plates locked by stud with recess in one plate receiving container handle

BP CHEMICALS LTD 26.01.73-GB-004043

Q61 (19.11.75) F16b-21/09

Device for supporting containers provided with handles on machinery has a lower plate having on its upper surface a stud having an enlarged head. The plate is mounted in a horizontal or near horizontal position on the machinery. An upper plate has a key-hole shaped hole receiving and locating the stud on the lower plate. The upper plate has at one end a portion which acts to suspend the container by its handle. The end portion carries a pivotally mounted bar which passes through the container handle and locks the upper plate and lower plate together by cooperating with the keyhole to prevent withdrawal of the stud, by preventing movement of the stud to the larger part of the keyhole. 14. 12. 73 (3pp).



~~2178-311.3~~

248/311.3

1414403

11-1975
COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of
the Original on a reduced scale

Fig. 1.

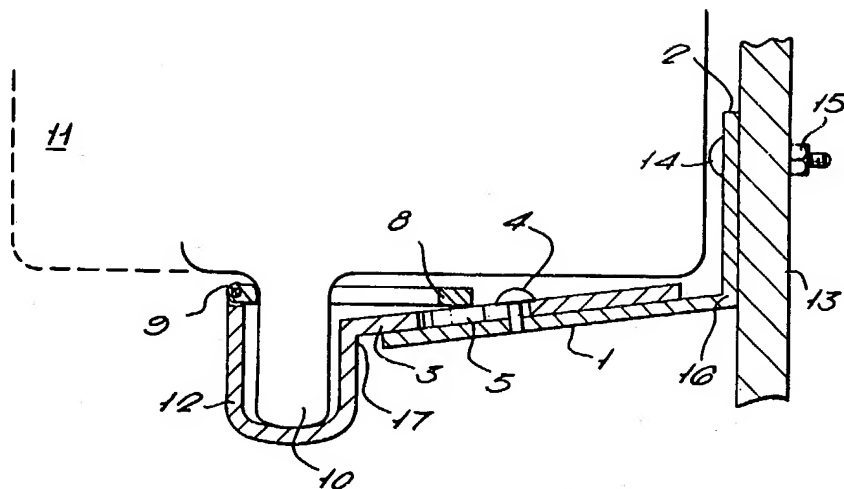
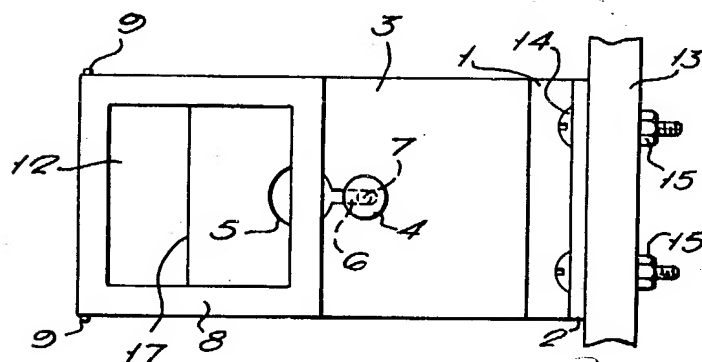


Fig. 2.



1 414 403

- (21) Application No. 4043/73 (22) Filed 26 Jan. 1973 (19)
 (23) Complete Specification filed 14 Dec. 1973
 (44) Complete Specification published 19 Nov. 1975
 (51) INT. CL.² F16B 21/09
 (52) Index at acceptance
 E2B 13B
 A4B 5AX
 (72) Inventor EDWARD BARNES



(54) CONTAINER SUPPORT DEVICE

(71) We, BP CHEMICALS INTERNATIONAL LIMITED, of Britannic House, Moor Lane, London, EC2Y 9BU, a British company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The present invention relates to a device suitable for use in supporting containers equipped with a handle on plant, machinery or other substrate.

Many household liquids and chemicals used in industry and agriculture are stored and transported in drums which may be fabricated from glass, metal or plastics. On occasions it is necessary for such a drum to be manually lifted and placed in position on a piece of machinery or plant for discharge of the contents therefrom. For example in agriculture it has been found beneficial to treat grass with formic acid prior to the production of silage. The treatment is usually effected during the mowing of the grass by inverting a drum of formic acid secured at some elevated point on the harvester and gravity feeding the acid to a nozzle directed towards the freshly cut grass. In the past a rotatable metal frame has been affixed to the harvester for receipt of the formic acid container. It was necessary for the operator to lift the container into the frame and then invert the frame before locking it in position. Although the containers are usually equipped with handles this procedure is somewhat tedious having regard to the weight of the container. Quite apart from the operational disadvantages the frames themselves are bulky and expensive. A device has now been devised whereby the task of securing a container in position on a piece of plant, machinery or other substrate is very much simplified and moreover the container is locked in position without the use of a rotatable frame.

Thus according to the present invention there is provided a device suitable for use in

supporting containers equipped with handles on plant, machinery or other substrate which device comprises a lower plate provided on its upper surface with a stud having an enlarged head and means for mounting the plate in the horizontal or near-horizontal position on the plant, machinery or other substrate and an upper plate provided with a key-hole shaped hole for receipt and location of the stud on the lower plate, the upper plate also being provided at one end thereof with a shaped portion serving to suspend the container by the handle, said member having pivotally attached thereto a bar adapted to pass through the handle of the container and lock the upper plate firmly to the lower plate by co-operating with the key-hole in the upper plate in such a manner that a withdrawal of the head of the stud, having been passed through the key-hole, is prevented.

Whilst key-hole shaped normally means a substantially circular hole narrowing into a stem it is intended throughout this specification to embrace a hole of any shape narrowing into a stem, the only restriction on the shape of the hole being imposed by the shape of the head of the stud which must be capable of passing through the hole. The stud having an enlarged head is preferably mushroom-shaped through other shaped studs may be used. The stalk of the stud being smaller in diameter than the head is longitudinally slideable in the stem of the key-hole and is retained therein by the head.

In the position wherein the upper plate is locked firmly to the lower plate the bar may cover the whole or a substantial part of the key-hole. It is preferred that the bar cover the key-hole at the point where the hole narrows into the stem.

The means for mounting the lower plate on the substrate is conveniently provided by bending the plate and equipping the bent portion with bolt holes. The plate may be bent to a right angle but is preferably bent to an obtuse angle. By maintaining the lower

plate at an acute angle to the horizontal when the plate is mounted on a substrate the locking action is reinforced by the weight of the container and contents acting on the bar which locks the plates together.

The shaped portion serving to suspend the container by the handle is preferably provided by bending one end of the upper plate to the approximate shape of the container handle.

The device may be fabricated in metal or in plastics material of sufficient strength e.g. the so-called engineering plastics.

Any container may be supported by the device provided the container has a handle but it is preferred for supporting containers having a combination of a handle, either recessed or protruding, and a contents exit means on the top thereof.

A preferred embodiment of the device will be described with reference to the Drawings, in which:—

Fig. 1 is a side-view of the device attached to a harvester with a formic acid container in position.

Fig. 2 is a plan-view of the device attached to a harvester in the absence of a formic acid container.

In the Figures 1 is a metal plate bent at an obtuse angle at point 16 to form a flange which is secured to the harvester 13 by the bolts and nuts 14 and 15 respectively. The metal plate 1 is provided with a stud 4 having a circular head, the cross-sectional area of which is greater than that of the stem 7.

The second metal plate 3 is bent at 17 to form a support 12 approximating to the shape of the container handle 10. Pivottally attached at 9 to the plate 3 is a metal bar 8 which forms a convenient handle when using the plate for lifting a container. The plate 3 is also provided with a circular orifice of larger cross-sectional area than the head of the stud 4 narrowing into a channel 6 narrower than the diameter of the head of the stud 4 but wider than the diameter of the stem 7 of the stud.

In operation the plate 3 is inserted into the handle of the container standing in the upright position so that the handle of the container is supported by the bend 12 in the plate. The container is then lifted using the bar 8 as a handle until the plates are at the same level, whereupon plate 3 is placed on top of plate 1 and its position adjusted until the stud 4 passes through the orifice 5. Plate 3 is then displaced so that the stem 7 of the stud 4 engages the channel 6 and is further moved until the stud is in the position shown in Fig. 2. The bar 8 is then rotated

until it partially covers the orifice, thereby providing a lock since the stud can no longer be slid down the channel and out of the orifice. The container 11 is then inverted by rotation about the plate 3 and is held in the inverted position by a gate arrangement (not shown in the Drawings). The weight of the container and contents serves further to lock the plates together by acting on the bar 8.

WHAT WE CLAIM IS:—

1. A device suitable for use in supporting containers equipped with handles on plant, machinery or other substrate which device comprises a lower plate provided on its upper surface with a stud having an enlarged head and means for mounting the plate in the horizontal or near horizontal position on the plant, machinery or other substrate and an upper plate provided with a key-hole shaped hole for receipt and location of the stud on the lower plate, the upper plate also being provided at one end thereof with a shaped portion serving to suspend the container by the handle, said member having pivotally attached thereto a bar adapted to pass through the handle of the container and lock the upper plate firmly to the lower plate by co-operating with the key-hole in the upper plate in such a manner that withdrawal of the head of the stud, having been passed through the key-hole, is prevented.

2. A device according to claim 1 wherein the stud having an enlarged head is mushroom-shaped.

3. A device according to either one of the preceding claims wherein the bar pivotally attached to the shaped portion covers the whole or a substantial part of the key-hole in the position wherein the upper plate is locked firmly to the lower plate.

4. A device according to any one of the preceding claims wherein the bar pivotally attached to the shaped member covers the key-hole at the point where the hole narrows into the stem in the position wherein the upper plate is locked firmly to the lower plate.

5. A device according to any one of the preceding claims wherein the lower plate is mounted on the substrate at an acute angle to the horizontal.

6. A device according to claim 1 substantially as hereinbefore described with reference to the Drawings.

J. WOOLARD,
M. W. PREUVENEERS,
Agents for the Applicants.